STATE OF WISCONSIN CIRCUIT COURT MILWAUKEE COUNTY

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DALE W. BRANDT as Personal Representative of the Estate of GLEN W. BRANDT,

Plaintiff,

-vs- Case No. 605-147

OWENS-ILLINOIS, INC., et al.,

Defendants.

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DEPOSITION OF WILLIAM L. LEA,

October 16, 1985

2:25 o'clock p.m.

REPORTED BY: KAREN M. IORDACHESCU

DEPOSITION of WILLIAM L. LEA, a witness in the above-entitled action, taken at the instance of the defendant, Owens-Illinois, Inc., under the provisions of Chapter 804 of the Wisconsin Statutes, pursuant to notice, before KAREN M. IORDACHESCU, a Notary Public in and for the State of Wisconsin, at the home of the witness, 5222 Hammersley Road, in the City of Madison, County of Dane, and State of Wisconsin, on the 16th day of October, 1985, commencing at 2:25 o'clock p.m.

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A P P E A R A N C E S

MICHAEL J. GONRING,
QUARLES & BRADY, Attorneys at Law, 780 North Water Street, Milwaukee, Wisconsin, appearing on behalf of the plaintiff;

ROBERT B. RILEY,
SCHIFF, HARDIN & WAITE, Attorneys at Law, 7200 Sears Tower, Chicago, Illinois, appearing on behalf of defendant Owens-Illinois, Inc.;

THOMAS N. HARRINGTON,
COOK & FRANKE, S.C., Attorneys at Law, 660 East Mason Street, Milwaukee, Wisconsin, appearing on behalf of defendant LAQ Jensen-Souders Associates, Inc.;

APPEARANCES: (Continued)

THOMAS A. FESSLER,
DAVIS & KUELTHAU, S.C., Attorneys at Law, 250 E. Wisconsin Avenue, Suite 800, First Savings Plaza, Milwaukee, Wisconsin, appearing on behalf of third-party defendant GAF;

RANDY S. PARLEE,
PETERSON, JOHNSON & MURRAY, Attorneys at Law, 733 North Van Buren Street, Milwaukee, Wisconsin, appearing on behalf of defendant Bell Asbestos, Asbestos Corp., Ltd.

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I N D E X

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E X H I B I T S

(There were no exhibits marked for identification)

WILLIAM L. LEA,

having been first duly sworn on oath

was examined and testified as follows:

EXAMINATION

BY MR. RILEY:

MR. HARRINGTON: Before we start, let me interpose an objection to this deposition on the grounds that the time for discovery has expired is this case. Go ahead.

Q Would you state your full name, for the record, Mr. Lea?

A William L. Lea.

MR. RILEY: Let the record reflect that this is the deposition of William Lea, taken pursuant to notice, and scheduled pursuant to agreement with Counsel for the plaintiff.

I won't represent that Mr. Harrington was a party to that.

Q Mr. Lea, I'm going be asking you some questions, and this court reporter is going to take done everything that is said in the room. It is therefore important that we not talk at the same time; that you let me

finish, me or any other lawyer who would ask any questions, to finish the question before you start your answer. That way, the question will be complete and the answer will be complete; also, the court reporter's job much will be much easier.

It is also important that you use words when answering the questions, because a shrug of the shoulder or gesture or nod of the head, might communicate to me, but the court reporter has a tough time taking those things down, so if you can try to remember that. We can't converse like a living room conversation, but instead, that the court reporter is here, I think that will help us, tremendously.

If at any time you don't understand one of my questions, I hope you will let me know; I will be happy to try to rephrase it and make it clear.

If at any time you would like to stop and take a break, stretch your legs, just signal and we'll be happy to accommodate you.

Do you have any problem with proceeding the way I just described?

A No problem.

Q Okay, thanks.

Could you state your present address, please?

A 5222 Hammersley Road, Madison, Wisconsin.

Q An we are actually at that address right now, aren't we?

A Right.

Q We're in your home, and I apologize for any inconvenience that that causes and appreciate your courtesy in allowing us to come here.

It's my understanding, it is difficult for you to travel away from your home, in light of your wife's condition of health, is that correct, sir?

A That's correct.

Q And we're here at your invitation, in light of that problem with traveling to some other location?

A Yeah.

Q Try to keep your voice up; it will help the court reporter.

Could you give me your date of birth, please, Mr. Lea?

A May 19, 1909.

Q You are currently retired, sir?

A Right.

Q Could you briefly describe your educational background, please?

A My education is in the field of chemistry.

I enrolled at the University of Wisconsin in

the end of 1928; started the first semester of 1929.

I graduated with a Bachelor's Degree in 1933; with a Doctor's Degree in 1940.

Q You say a doctor's degree in 1940; in what field?

A In Chemistry.

Q Were you in school continuously from 1929 to 1940, or did you --

A No, it was continuously.

Q Your Ph.D. was from the University of Wisconsin?

A Right.

Q After receiving your Ph.D. in Chemistry in 1940, what did you do?

A I was employed by the Wisconsin State Board of Health, in the Occupational Health Division.

Q Now after receiving your Ph.D., did you, at any time, do any further educational work, in the form of seminars or studies or courses, anything like that?

A What period of time was this?

Q At any time after 1940, did you have any further education?

A Well, we attended short courses in the field of occupational health, or public health service; U. S. Public Health Service.

Q Did the U. S. Public Health Service, from time to time, sponsor seminars for individuals working in

the industrial hygiene field?

A That's correct.

Q Where were those held?

A Well, either in Washington, D. C., at their facilities there, or at the Taft Engineering Center, in Cincinnati, Ohio.

Q Can you tell us approximately how many times you attended such programs over the years?

A Probably about once a year.

Q Generally, what was the subject matter of those kinds of programs?

A On the planning and conduct of studies to determine the atmospheric concentration of chemical compounds, which were present in the air; either the dust, fume, vapor or gas.

MR. HARRINGTON: May I hear the answer back, please.

(Last answer read back by reporter)

Q Have you ever been a member of any professional organizations, or honorary organizations?

A Well, I was a member of the American Chemical Society, and let's see, the American Conference of Governmental Industrial Hygienists.

Q When did you join the American Conference of Governmental Industrial Hygienists?

A 1940.
Q Are you still a member, today?
A No.
Q When did you stop your membership?
A Well, possibly 1966 or 1967, when I changed my activity from the State Board of Health, to the field of radiation control.
Q And is that why you stopped your affiliation with the American Conference of Governmental Industrial Hygienists?
A Yes.
Q Is the shorthand form for that, ACGIH?
A Yes.
Q If I refer to ACGIH, you will know what I'm talking about?
A Right.
Q What did the ACGIH do; what type of activities did it sponsor while you were a member?
A Well, those seminars, that were mentioned previously, plus they had an annual meeting, which was in effect, a seminar which is was attended by all of the members.
Q Did you attend annual meetings of the ACGIH?
A Right.
Q Now you said seminars such as you described earlier;

you described some of the seminars, and you made reference to them being sponsored by the U. S. Public Health Service.

Did the ACGIH co-sponsor seminars with them, or have the same kinds of seminars, or what was the relationship?

A The ACGIH was formed or sponsored by the U. S. Public Health Service.

Q After the ACGIH was formed, did it actually sponsor seminars of its own?

A Oh, yes.

Q Did you attend those, from time to time?

A Yes, right.

Q And what were the subject matters of those seminars?

A Well, that's the one we said before where -- the planning and conduct of implant studies to determine atmospheric concentrations of harmful air contaminants.

Q Now a moment ago, you indicated that in 1940, you started working with the Wisconsin State Board of Health, correct?

A Right.

Q Was there a particular unit of the State Board of Health that you worked with?

A Industrial Hygiene Unit.

Q Who else was employed by the Industrial Hygiene Unit when you joined?

A Well, the director was Dr. Paul A. Brehm, B-r-e-h-m, and a William Z. Fluck.

He had been with the unit for three years prior to that, and I think the unit was formed in the Wisconsin State Board of Health, in 1937.

Q Did you have occasion to work with Mr. Fluck, over the years?

A Oh, yes.

Q Did you find him to be a competent and effective industrial hygienist?

A Oh, yes.

Q Was there anyone else employed by the Industrial Hygiene Unit, at the time you joined?

A Office personnel.

Q What was your job, when you joined the Industrial Hygiene Unit in 1940?

A As Industrial Hygiene Engineer.

Q How long did you hold that position?

A Till 1966.

Q At any time during the period from 1940 to 1966, did you assume the position of Director of the Industrial Hygiene Unit?

A In about 1948 or 9; near the end of '48, or early,

first month or two of '49.

Q Who did you succeed?

A Paul Brehm.

Q And how long did you hold the position of Director?

A Till 1966.

In 1961, the State Board of Health, started a section on Radiation Control, which I also headed, and that by 1966, my activities were mainly concerned with the Radiation Protection Section, so that's when I devoted all my time to Radiation Protection.

Q So you moved into Radiation Protection, exclusively, starting in 1966?

A Right.

Q Now were you still employed by the State Board of Health, and just moved to a different unit, or was this entirely different employment, when working in Radiation Control?

A No; still with the State Board of Health.

Q How long did you stay in Radiation Protection with the State Board of Health?

A Until I retired in 1974.

Q Since you retired, have you held any consulting positions, or any employment, of any kind, in the industrial hygiene field?

A No, not to the extent that I would say it was an occupation.

It would be, I was called upon as a consultant, a couple of times, for the reason that in the late '60s, early '70s, a lot of the work in industrial hygiene or occupational health, whichever term you would like to use, was under the guidance of OSHA, Occupational Safety and Health Agency, and under that program, neither OSHA, nor the State Board of Health, as an agency, acted as consultants to the industry, so I did have a couple of requests for consultation by Wisconsin industry, in that time interval, which was after I retired.

Q At any time during your life, have you ever done any teaching?

A I went with the University of Wisconsin in 1948, for about a year and a fraction, teaching Chemistry in the School of Engineering.

Q Have you ever done any work on any committees of the ACGIH, or been a member of any committees?

A No.

Q Can you describe for me, generally, what the Industrial Hygiene Unit of the Wisconsin State Board of Health did, during the period from 1940 to 1966, when you were working there?

A Well, at the request of management and industry, we traveled to the industrial plant and conducted studies to determine the atmospheric concentration, in the working environment, of potentially harmful chemical compounds.

Q What was the purpose of your studies?

A This was to improve the, or safeguard employee health, from overexposure to harmful air contaminants, and to report to management, recommend corrective measures, whenever was deemed necessary or advisable.

Q Now when you folks at the Industrial Nygiene Unit went out and did a study, did you have the force of law behind you; was this a regulatory agency?

A No, we weren't a regulatory agency, but we used the limiting concentrations of air, which were published in one of the Wisconsin Industrial Commission's codes.

Q What were those limiting concentrations called?

A Maximum allowable concentrations.

Q Now how did you use maximum allowable concentrations to, as you described it, prevent overexposures to possible contaminants?

A Well, if the average or weighted atmospheric concentrations of a given air contaminant, was below

the listed maximum allowable concentration in the Industrial Commission's code, it was, as far as the health of the employees working in that environment was concerned, was deemed to be safe.

Q Now you mentioned that you might get requests from management or plants to come out and do studies.

Was there any other way that it would be determined that a study would be made at a particular location?

A Well, sometimes the representative of the labor union would request a study.

Q Any other way that it would be determined to make a study?

A Well, the Industrial Commission might request it, but that was a rare event.

The reports which we sent, after making these studies, which we sent to plant management, were considered confidential reports.

The original copy was retained in the State Board of Health files, for that plant. The Labor Department did not receive copies of the --

Q Now could you describe the step by step process, whereby a study as you've described it, is done, or was done by you and others working with or for you at the Industrial Hygiene Unit?

A Well, of course, the first step was to get the request to make the study from someone who was authorized to make it. We would then take the proper type of air sampling equipment with us, in the car; go to the plant. Usually, we would have some representative of the plant management take us out to the work area, so we could see the processes that was being conducted. We then would determine where we would take our air samplings, and how many we would take, and how long a time period they would cover.

Q Once you took the sampling, what did you do with it?

A It went back to the laboratory, and things that would -- the concentration of the air pollutant was determined by chemical analysis, if the air contaminant was -- lent itself to; in other words, dust were not analyzed by us, as to their chemical identity, but this was done in using a low power microscopic technique.

Q Once you got information about the concentration of various elements in the sample, then what did you do with that information?

A Well, it was written up in a report and typed up, and a copy of the report was sent to plant management, or if it happened to be a request from

the Union, a copy would be sent to them.

Q You mentioned earlier, you have -- may have already gone over this; I don't mean to repeat, but would you use the maximum allowable concentration, in anyway, in making judgments about the concentrations you found in the samples?

A Right, earlier, in our off the record conversation, we were talking about highway speed limits; this is sort of the way maximum allowable concentrations were used in establishing safe limits.

Most maximum allowable concentrations were deemed to be adequate protection for employees exposed eight hours a day, five days a week, continuously, without having any ill effects.

Q Now you mentioned eight hours a day.

Did time have something to do with these maximum allowable concentrations?

A Right, since a maximum allowable concentration is based on this concentration being present, or an employee being exposed to this for eight hours, day after day, continuously; if either the concentration was less than the maximum allowable concentration, or the time of exposure was less, that would alter the interpretation, because it's a time concentration type of figure you're dealing with

there.

Q So we're clear, in order to determine if an exposure is below or above the maximum allowable concentration did you take into account the concentration of this element in the atmosphere, and the amount of time that an individual might be exposed to that concentration?

A That's right.

Q And if the amount -- if the concentration were to differ, at various places in the same plant, and the amount of time spent at those locations by a worker also were different, did that equation have to be worked out, to average those things?

A Right.

Q So in order do determine whether exposures in a plant were above or below the maximum allowable concentrations, did you look at just one location, and determine the time, or did you have to look at various locations, and consider the various amounts of time spent at each?

A Look at various ones, and related it to the time spent in that area.

For instance, there were a lot of reports, besides specific location where an employee worked. We also included a number, GA, which meant, general

atmosphere; in other words, no one specifically occupied that spot all the time, but somebody could occupy it, just walking through, even if they didn't work there, so general atmospheres were also included in this. Maybe a person ate lunch in this atmosphere; includes the general atmosphere.

You consider the general atmosphere concentration, in relation to the time it was occupied by an employee.

Q Where did these maximum allowable concentrations come from; who put them out?

A They were promulgated by the ACGIH.

Q Did the maximum allowable concentrations represent a consensus view of the ACGIH, on what the safe level of exposure was?

A Right.

There was -- once this was, maximum allowable concentration was established, it was not isolated from change. If anyone in this field had any evidence to support the contention that a MAC was set too low, they could submit this evidence to a committee of the ACGIH, and if favorably considered, the MAC would be adjusted to show the consideration of this evidence.

Q Now throughout the time period that you were with

the Industrial Hygiene Unit, did you actually go out and do studies yourself?

A Sure.

Q Including the time period when you were the Director?

A Right.

Q In addition, I assume as Director, you had some administrative duties?

A That's correct.

Q Did your administrative duties include the review of studies done by others, who were working under you, in the Industrial Hygiene Unit?

A That's correct.

Q Just to put it in perspective, when you started, how many people were in the Industrial Hygiene Unit of the State Board of Health for Wisconsin?

A Well, there were two engineers that made studies in the plants, like we have been describing; there were two Industrial Nurses, and there were two office personnel.

Q Over time, did the staff grow?

A Yes, sir, up until the commission, in the late '60s or early '70s, when much of the work in the industrial health field, was shifted to the Occupational and Safety Health Agency.

Q Would it be fair to say, that you started in the field of Industrial Hygiene at approximately the time that that field was being born, in the State of Wisconsin?

A Well, as I mentioned, it started in about the middle of 1937.

Q Now when you were beginning your work at the Industrial Hygiene Unit, you mentioned you did studies of, I believe, dust, gases, vapors and fumes, is that right?

A Right.

Q Focusing in on dust, for a minute, one of those four, what was the primary source of concern, from the industrial hygiene standpoint, at that time?

A Well, undoubtedly, it was silica, because Wisconsin has a number of silicon-handling industries that, such as foundries, and in fact, we have some silica mines that are over on the bluffs, overlooking the Mississippi River.

Q And what was the health concern associated with silica?

A Well, it was a breathing impairment, which was called silicosis.

Q About how much of your time, say, in the 1940's and early 1950's, was spent on silica-related studies or

analysis?

A My individual time, or of the Industrial Health Unit?

Q Of the Unit.

A Unit; oh, I would say probably about 10 percent.

Q Now did your duties in the Industrial Hygiene Unit, include keeping current with the literature in the field?

A Oh, yes.

Q And was there literature in the field, on silica, as an industrial hygiene concern?

A There was -- the main publication was one called Industrial Hygiene Toxicology, which was, I think, a monthly journal.

Q Did you consider that authoritative?

A Oh, yeah.

Q How about the United States Public Health bulletins?

A Right.

Q Was that among the literature you kept current with?

A Right.

Q Did the Public Health bulletins and the Journal of Industrial Hygiene Toxicology, were those publications that came to the Industrial Hygiene Unit?

A Right.

Q Those were reviewed by you and others in the Unit?

A Right.

Q We've talked a little about silica.

Can you tell me, in the dust category in the 1940's, early '50s, how was asbestos, as a dust viewed, from the industrial hygiene standpoint?

MR. HARRINGTON: Are you asking him, just so it's clear, from his standpoint, or from the entire profession?

MR. RILEY: From his view of it, but obviously, in his professional capacity, as an industrial hygienist, as opposed to his non-professional capacity.

A Well, it was viewed as being somewhat similar in its effect on the lung, as silica, in that it was a lung impairment type of injury.

Q I guess what I want to get at is, relatively speaking, silica as opposed to asbestos, how were they viewed, relative to one another, in terms of how much focus there was on it, in the industrial hygiene field; was there more focus on silica, or more focus on asbestos?

A More on silica.

Q Was there an MAC, what you called the safe level of exposure, that was generally accepted for asbestos

while you were in the industrial hygiene field?

A Yes, there was.

Q Can you tell me, over the entire time you were with the State Board of Health as an industrial hygienist, how much of your time, what percentage of your time did you spend working on anything that related to asbestos?

A Probably a small fraction of one percent.

Q So 99 plus percent of your time, was spent on other things, other than asbestos?

A That's correct.

Q During the entire period of time that you were with the Industrial Hygiene Unit, how many locations did the Unit study, with respect to asbestos in the atmosphere?

A Just two, that I can remember.

Q Where were they?

A One was in Algoma, and the other was in Two Rivers.

Q And how many of these studies would the Industrial Hygiene Unit, for all substances, not just dust, but for dust, fumes, vapors or gases; how many studies would the Industrial Hygiene Unit do in a given year?

I know I can't ask for an exact number, but generally speaking?

A Well, somewhere between, maybe 350 and 500.

By giving you 350, I think we were at least doing a study every day of the year, of some kind.

Q During the period of time that you were employed by the Industrial Hygiene Unit, were you aware of any reports of anybody in Wisconsin contracting an asbestos-related disease?

A No.

We used to get, each month, a report of all the occupational illnesses that were compiled by the Industrial Commission, the Labor Department Statistical Division. They would give the name of the site, name of the plant, name of the employee who had filed a claim and the causative agent, or alleged causative agent.

Q In all those reports, did you see any reports of asbestos being a causative agent of industrial disease in Wisconsin?

A No, not that I can recall.

Q Now you mentioned Algoma.

What kind of a plant did you work at there?

A Was a plant that fabricated fireproof enclosures for doorways and so forth.

Q Now it's my understanding, that that plant was owned by a couple of different companies, over time, and I

don't want there to be any confusion what name I use for the plant, so if I just call that the Algoma plant, will you understand what I'm referring to?

A Yes.

Q Now what kind of studies were done at the Algoma plant by the Industrial Hygiene Unit?

A Well, we made studies to determine atmospheric concentration of dust connected with some of their fabrication of these fireproof doors, or fire retardant doors.

Q At whose request was this work done?

A Plant management, I think; probably the plant Medical Department, or the plant superintendent; I don't know which it would be.

Q Did you actually participate in some of that study work that was done there?

A Yes, but I think most of it was done just prior to my coming to the State Board of Health.

Q Now before you actually did any work in connection with the Algoma plant, did you review the prior studies that were done by the Industrial Hygiene Unit, to see the results of those studies?

A Oh, sure; I always looked at the file of previous work done, yes.

Q And the file would include the studies that were

actually performed and written up, is that correct?

A Right.

Q Would also include correspondence that related to those studies?

A Right.

Q Mr. Lea, I'm going to show you some documents now; these documents have been previously marked at another deposition.

I'll describe them, for the record, so that we know what we're talking about.

MR. RILEY: I assume other Counsel already have copies of these documents.

That's true, isn't it?

MR. GONRING: That depends on what you're going to talk about.

MR. RILEY: I'm talking about general exhibits.

MR. GONRING: I have those.

Q The first one is marked as Detjen Exhibit 1 for identification; it's a copy of a March 3, 1948 letter from William Z. Pluck, to Mr. G. R. Mercer, Factory Superiintendent, Algoma Plywood and Veneer; attached to that is a three-page survey report, bearing the date, February 13, 1948.

The next is Detjen Exhibit 8 for

identification; it's a copy of an August 18, 1948 letter from Paul A. Brehm, to Mr. G. R. Mercer; attached to that is a two-page survey report, bearing the date July 29, 1948.

The next is Detjen Exhibit 14 for identification; it is a two-page document, which purports to be a dust survey report, bearing the date November 12, 1948.

Next is Detjen Exhibit 15 for identification; it's a two-page document, which purports to be a dust survey report, bearing the date December 1, 1948.

Next is Detjen Exhibit 18 for identification; purports to be a copy of an August 10, 1949 letter from William Z. Fluck, to Mr. G. R. Mercer; attached to it is a one-page document, which is a dust survey report, bearing the date August 2, 1949.

D-e-t-j-e-n.

A Where does that name come from?

D-e-t-j-i-n.

Q That is the last name of a woman whose full name is Gertrude Brice Detjen, who has testified in this case, and she was the plant nurse, at the time these studies were done. These were marked as Exhibits to her deposition

A That is the person's name?

Q That is the person, correct.

I will represent to you, Mr. Lea, that these are documents which were produced from the files of the Algoma plant. I don't know whether they are exhaustive of all reports that may have been done by the Wisconsin State Board of Health, Industrial Hygiene Unit prior to the time that your work at the Algoma plant took place. They are all the ones that were produced in connection with this case.

I guess my question for you is, are those reports, at least some, are those reports which you did review in connection with your work at the Algoma plant?

(Witness examines document)

A Right.

Q I'd like you to look at Detjen Exhibit 16, please; that's a copy of a February 23, 1949 letter from D. H. Byers, Scientist, Laboratory Section, Division of Industrial Hygiene of the United States Public Health Service, to Mr. William Z. Fluck?

A I don't believe I have 16.

Q It's right here.

I haven't handed that one over to you.

My question for you is, whether that piece of

correspondence that relates also to the Algoma plant, was among the materials that you reviewed in connection with your work at the Algoma plant?

(Witness examines document)

A Yes.

Q I would like you to now look at Detjen Exhibit 22, the first page of which is a copy of a September 28, 1951 letter from William L. Lea, to Mr. G. R. Mercer; attached to it is a two-page dust survey report, bearing the date September 5, 1951.

(Witness examines document)

Q Does your signature appear on the first page of Exhibit, Detjen Exhibit 22?

A Yes, it does.

Q And is that first page a true and correct copy of the letter that you sent to Mr. G. R. Mercer, Superintendent of the Algoma Plywood and Veneer Company, on or about September 28, 1951?

A Yes.

Q And are the second and third pages of that document, copies of the report that you transmitted with your letter?

A Yes, I believe so.

Q On the last page of the Exhibit, the signature is of Mr. Walter H. Poppe, Jr., and Mr. Edward J. Otterson.

Were those employees in the Industrial Hygiene Unit, under you, as Director?

A Yes, they were.

Q And did you review the report, prior to transmitting it to Mr. Mercer?

A Yes.

Q And did you basically review it for purposes of accuracy and then endorse it when you sent it off to Mr. Mercer?

A That's correct.

Q Now could you explain to us, what the purpose was in putting together a report like this and transmitting it to Mr. Mercer at the Algoma plant?

A Well, the purpose of the study is to determine the concentration of dust at various locations in the plant, under normal operating conditions.

Of coarse, the purpose for writing the report and sending it to the plant superintendent, is to acquaint him with facts that -- what the conditions are, in relation to what is considered to be acceptable working conditions for that particular dust.

Q Now on the second page of this Exhibit, the first page of the survey report itself, it states, Kaylo dust counts, and then it describes certain sample

locations, and then under the heading, million particles per cubic foot of air, there are numbers.

Now what are those numbers reporting?

A Number of particles of dust originating from the material, per kilo, found in the air; for instance, the first number is drum sander, feed end; we found a concentration of this dust of 3.3 million particles per cubic foot of air.

Q Now is that total dust, or is that a particular kind of sub-category of air reported?

A That's total dust.

Q Now what was in the air as part of the dust; what was the composition of the dust at the Algoma plant?

A Well, we collected a large sample of the air-borne dust in that plant, and sent it to the U. S. Public Health Service for analysis. I think you got a copy of it here, from D. H. Byers' report of the analysis.

Q You're referring to Exhibit 16?

A Right.

They analyzed the sample for us, since we did not have equipment that could be used to determine the asbestos content, specifically, but they do, and they show a concentration of 13 percent free silica, and the notable result they have there is, more than 5 percent and probably less than 12

percent of asbestos in this sample.

Q And then that accounts for approximately 25 percent of the dust.

What was your understanding of the rest of the dust; the other 75 percent was comprised of what?

A I suppose that would be the binding material in the board.

Q Including wood?

A Right.

Q Now was there, at the time of this study, a recognized safe limit, maximum allowable concentration for asbestos?

A Yes, there was.

Q What was that maximum allowable concentration?

A 5 million particles per cubic foot of air.

Q Was there a maximum allowable concentration for silica, as well?

A There was.

Q What was that?

A The same value; five million particles per cubic foot of air.

Q Let's focus on the asbestos maximum allowable concentration.

Was that a standard to be applied to all the dust in the air that contains some portion of

asbestos, or just the asbestos that was in the air?

A Just the asbestos.

Q So it was a pure asbestos standard?

A Right.

Q Now as I understand your testimony, this Kaylo dust was not pure asbestos; it was 5 to 12 percent asbestos, is that correct?

A Yeah.

Q Your answer -- I'm sorry, your answer to that was?

A What was the question>

Q The question was, how much of the dust in the air the Algoma plant, was asbestos, based on your understanding of --

A Well, based on this study, that was analyzed by United States Public Health Service, the asbestos content was given as more than 5 percent and probably less than 12 percent.

Q Now how did you go about comparing then, the Algoma dust counts with the maximum allowable concentrations, since only a relatively small portion of the dust at the Algoma plant was asbestos?

A All right.

To make it more understandable, let's assume that we have asbestos mixed with some relatively

innocuous material, like paper fibers, cellulous fiber and that the amount of asbestos is, well for the purposes of illustration, let's say it was 50 percent. Well, the dust generated from that would then have an allowable concentration double that for asbestos, alone, because half of the particles counted, are other than asbestos, so your counted sample found 20 million particles per cubic foot, by chemcial analysis; you mix the dust, you knew half was asbestos, you knew half of the particles you counted were asbestos, so then you arrive at, must be about 10 million particles per cubic foot, when you have a total of 20 million particles per cubic foot of mixed dust.

Q So if you had a mixed dust, did you have to come up with new maximum allowable concentrations for that unique mixed dust?

A Yeah.

What was done, you take the maximum allowable concentration for each component of the dust, put it in a mathematical expression or equation, you would calculate the MAC for that particular mixture.

Q So with the example you gave, if you had something that was 50 percent asbestos, and 50 percent some innocuous substance, like paper fiber, the MAC for

that would be roughly 10 million particles per cubic foot of air, correct?

A Right.

Q And as the percentage of asbestos in that total dust went down, the maximum allowable concentration would go up?

A Till you finally reached the MAC for the paper fiber in the example I gave.

Q For just general nuisance dust, was there a maximum allowable concentration for that?

A Yes, there was.

Q What was that?

A 50 million particles per cubic foot of air.

Q The assumption is, 50 million particles is so much, you should never have 50 million particles of anything in the air?

A Right.

Q Now in coming up with a maximum allowable concentration for this Algoma dust, using the process you described, what did you come up with, as a maximum allowable concentration?

A Around 43 million particles per cubic foot of air.

Q Based solely on the asbestos percentage in it, correct?

A Right.

Q Now this dust also had silica in it, as I understand?

A Right.

Q And then that had an impact on what the maximum allowable concentration would be for that particular total dust at Algoma?

A Right.

Q So taking into account both the asbestos and the silica in the air, what maximum allowable concentration did you come up with for the Algoma dust?

A Well, that's the one that -- the figure I gave you, to your previous question, was around 40 million particles per cubic foot of air.

Q Is that for silica, alone, or silica and asbestos, total?

A That's for the mixture, the mixed dust.

Q Now in Exhibit 22, if you will look at Exhibit 22, underneath the dust counts, there is a reference to the dust study made on August 2, 1949, and an analysis of the composition of the Algoma dust, and that suggests a maximum allowable concentration for Kaylo dust was probably between 5 to 20 million particles per cubic foot of air.

Now is that a reference to an aggressive

maximum allowable concentration, or is that a conservative maximum allowable concentration, in light of what you just said?

A Well, have to view that as being a conservative one. Say, if you took the calculated value, would be close to 40 million particles per cubic foot, but this particular mix of dust, to be conservative, we say, we used a figure of 20 million particles, is the limit of concentration.

Q Now when you reviewed this report before sending it to Mr. Mercer, did you examine those dust counts that were actually found at the plant; the numbers that are listed there?

A Right.

Q And what did you conclude about the Algoma dust conditions, with respect to the maximum allowable concentration?

Did you find that it was above the maximum allowable concentration, or below?

A Below.

Q And what did these dust counts of below the maximum allowable concentration indicate to you about the safety of the workers at the Algoma plant?

A Well, we viewed it as indicating conditions were safe, for prolonged exposure, since they were well

below the accepted.

Q And you mentioned the concept of prolonged exposure. Does the time weighted average come into play, in any dust study, including the Algoma dust study?

A Oh, sure.

Q So in analyzing the conditions, you would look at all of the locations and consider, generally, the time spent at those locations, in addition to just the counts?

A Right.

Q And that would factor into your conclusion that the level of dust there was safe, in the plant?

A Yes.

Q One thing happens to stick in my mind. You said that a maximum allowable concentration is kind of like a speed limit, in terms of being a recognized safe level, but am I correct that a maximum allowable concentration has this time weighted average aspect in it, whereas speed limit doesn't have that, correct?

A Right.

Q That is, if you are going 65 miles an hour, for even just one minute, and the policeman is there, then you would be breaking the law, correct?

A Right.

Q But if you had a dust exposure for just one minute, over one hour a day, that was above the maximum allowable concentration, but the rest of the day below, does that mean you are above the, or violating the maximum allowable concentration?

A No, because you see, you consider the total exposure time.

Q Okay, would you please look at Detjen Exhibit 23, please.

It is a copy of a letter from Gordon R. Mercer, to The State of Wisconsin, Wisconsin State Board of Health, Industrial Hygiene Division; Attention: Mr. William Lea, Ph.D., Director.

It is right here, sir.

(Witness examines document)

Q Is that a true and correct copy of a letter that you received from Mr. Mercer on or about October 31, 1951?

A I believe so.

Q That letter indicates that the dust -- well, let me back up a second.

Mr. Mercer thanks you for the report submitted with your letter of September 28, 1951; we can agree that's Exhibit 22, can't we?

A Right.

Q And with reference to that report, Mr. Mercer says, "The dust collected on the Mattison saw as covered by sample #5 is being revised so that the dust count at this location will be lowered considerably."

"When we are ready for another test we will let you know."

A I think what he meant there, not collected, but he meant, collector.

Q Now we haven't had produced for us, any study in 1951 or even in '52, that relates to the Algoma plant, that would tell us what the results of a follow-up study were, or even if one took place.

Do you know whether or not, as a result of this letter, another study was done shortly after the date of the letter?

A I'm assuming one was done, because his last sentence on here is, "When we are ready for another test we will let you know.".

MR. RILEY: Could you read that answer back.

(Last answer read back by reporter)

Q Do you have a recollection of what that study might have included?

MR. HARRINGTON: Let me just interpose an objection, as calling for

speculation.

Q I don't want you to speculate. I don't mean to imply I want you to speculate.

If you don't remember, that's fine, and if you do remember, just please tell us what you do remember.

A Give me the question again.

Q The question is, do you know whether such a study actually was or was not done; do you know, one way or another?

A No, I don't.

Q Okay; now looking at Exhibit 22, do you have that? Here it is.

In your cover letter to Mr. Mercer, you indicate, "It is possible to reduce the dust concentration", and you're referring to the Mattison saw, ". . .by providing an additional hood or replacing the present hood with a longer one which would capture the dust particles presently being thrown toward the feed end by the rotating saw blade."

What was the purpose in including that statement in your letter?

A Well, you have a dust collection system there, and by modifying, it's like they can make it more

efficient, and there would be very little expense involved, since they have, already have the system.

We would routinely make that kind of suggestion, for any plant, for improving conditions over what they are, regardless of whether they are below MAC or not.

Q Was it your intention, to suggest by making that recommendation, that if they didn't do that, they would somehow have a situation that violated the maximum allowable concentration?

A No.

We were just trying to let them get -- raise the benefit from ventilation control.

We are suggesting something that already existed.

Q And looking at Exhibit 23, was it your understanding that reference to the revision being made to the Mattison saw, was as a result of your letter of September 28, 1951?

A Yes, I believe that's right.

Q Mr. Lea, would you please look at Detjen Exhibit 24, please.

I have it here, in my hand, and I will describe it and hand it to you.

The first page is a copy of an October 18, 1956

letter from William L. Lea, Ph.D., to Mr. G. R. Mercer, Superintendent; attached to the letter, is a four-page dust study, bearing the date June 18, 1956.

(Witness examines document)

Q Does your signature appear on the first page --

A Yes.

Q Of Exhibit 24?

A Yes, it does.

Q Is that your signature, or was that signed by someone else for you?

A It was signed by the secretary.

Q Who was the secretary?

A Her name was Gertrude Stoner.

Q Look at the last page of the document.

There is a signature line there, and someone wrote -- well, your name has been written, and there is a small S below.

Do you know, is that also an indication your secretary signed this?

A Yes.

Q Was that ordinary practice, if you had worked on a report or dictated a letter, for you to instruct your secretary to go ahead and sign it, get it out, if you were out of the office?

A Right.

Q And are the documents which comprise Detjen Exhibit 24, true and correct copies of your letter to Mr. Mercer, and the study that was transmitted with your letter?

A Yes.

Q Just so we're clear, you don't have any question about the authenticity of these documents, do you?

A No.

Q Now this letter is transmitting another report of a dust study at the Algoma plant, which took place on June 18, 1956, correct?

A Right.

Q Apparently, you left something behind when you were out at the plant?

A Left a piece of equipment, ventilation measuring equipment.

Q Was the equipment that you used in order to do these dust studies, standard equipment used in the industrial hygiene field, at the time?

A Sure.

Q And from time to time, did you receive advice on the United States Public Health Servcie, about the type of equipment you should use?

A Right.

Q Did they also give you advice regarding the techniques in regard to dust studies?

A Yes.

Q Looking at the actual report that is attached to your October 18, 1956 letter, what were you measuring out at the plant on this occasion?

(Witness examines document)

A The first sentence in the second paragraph states, that it's to measure silica content of air-borne dust around weldrock operations, and a gross air sample was taken on the second floor of Plant No. 2, in the vicinity of the Tenoner.

Q Was there also an analysis of how much of the total dust was asbestos?

A Yes.

Q And am I correct then, that total dust counts were done, and then a report was made on how much of the total dust was either silica or asbestos?

A Wait a second.

(Witness examines document)

A A large enough air sample was taken to get enough dust particles to be chemically analyzed for free silica content and asbestos.

Q How much of the total dust that was studied and measured in June of 1956, was free silica?

A 5.3 percent.

Q And how much of it was asbestos?

A 10.3.

Q Do I correctly understand then, that 89.7 percent of the dust at the Algoma plant, as of this date in 1956, was something other than asbestos?

A Right.

Q Now was the maximum allowable concentration for asbestos, for pure asbestos, still 5 million particles per cubic foot of air, as of 1956?

A Yes.

Q Did that standard change at all, at any point in time, during your employment at the State Board of Health?

A No.

It was always 5 million particles per cubic foot of air.

Q During the entire duration of your work at the State Board of Health, and your membership in the ACGIH, were you aware of anyone challenging the safety of the maximum allowable concentration for pure asbestos?

A No.

Q During that same period of time, are you aware of any written literature in the field, which

challenged the safety of the maximum allowable concentration for asbestos?

A No.

Q Now on the third page of the Exhibit, the second page of the report, do you report there the total dust count in millions of particles per cubic foot of air --

A Right.

Q -- at various locations, correct?

A Correct.

Q To give us some idea, we have a reading such as, for example, No. 9, B. 2, straight line rip saw, feed end; 1.7 million particles per cubic foot of air.

Can you give us some idea of what 1.7 million particles per cubic foot of air is, by comparing it, say to the amount of dust in the air, in the average living room, or something like that?

A Well, would be heavy compared to the air in a living room, for instance.

Q Is 1.7 million particles per cubic foot of air, a dust level that you can see?

A You can, if the light conditions are right.

Q Like if there's sunlight streaming through the window, you will be able to see it?

A Right.

Q Under normal lighting, you might not be able to see it?

A That's correct.

Q On the third page of the report, the fourth page of the Exhibit, under summary, your report states, "From the results of the analysis of the gross air sample (Table I) it was decided to use 20 million particles per cubic foot of air, as the M.A.C. (Maximum Allowable Concentration) for the air-borne dust in the vicinity of weldrock operations.

Now we have reference to Table 1. This is a breakdown of free silica and asbestos, correct, that we just talked about?

A That's correct.

Q And since the dust at the Algoma plant that you studied, wasn't pure asbestos, did you have to come up with a maximum allowable concentration for that total dust mixture?

A That's correct.

Q And the figure for the maximum allowable concentration for the Algoma dust was 20 million particles per cubic foot of air, correct; according to the third page of the report here, right at the top?

(Witness examines document)

A Well, at the top there it says, "It was decided to use 20 million particles por cubic foot of air, as the M.A.C. for the air-borne dust in the vicinity of the weldrock operations."

I think the calculated value might have been double that.

Q Looking at the third paragraph on that same page, it says, "By the same token, the M.A.C. value for asbestos dust is 5 m.p.p.c.f.", and that's million particles per cubic foot, right?

A Right.

Q "The analysis shows 10.3% asbestos in the air-borne dust. An M.A.C. value of 20 m.p.p.c.f. is again on the conservative side."?

A That's correct.

Q Could you just explain what you're saying there in the report?

(Witness examines document)

Q And I guess what I'm specifically asking is, you say that the MAC of 20 million particles, is again on the conservative side?

A Well, it's based on what I mentioned before, I think.

If you put this percent composition asbestos in this weldrock dust sampling, you do this

mathematical equation, calculate it, you end up with a value almost double 20 million particles per cubic foot, that's why I would say it was on the conservative side, because we're saying, let's use the maximum concentration here.

Q Now if you look at Page 2 of the report, the third page of the Exhibit, you report the dust -- total dust counts and I read the highest one was 8.1 million; the lowest was .6 million particles per cubic foot?

A We got 8.1.

Q Yeah, I'm sorry; 8.1, is the highest, and .6, is the lowest.

A There's 0.1, for a low one; that's No. 7.

Q Oh, I'm sorry; that one looks like and 8, on my copy, but maybe the copy is --

A Yeah.

Q Yours, there is a little smudge.

This looks like 8.1 million --

A Yeah.

Q In any event, in your view, did any of those dust counts exceed the maximum allowable concentration, the safe limit for exposure to asbestos?

A No, because I say, if you calculated with this particular dust mixture, I'm sure it would end up

around 38 million particles per cubic foot of air.

All these numbers are well below that.

Q And these are total dust, correct?

A Right.

Q Now even if you had one or more locations that, I realize it doesn't, in actuality, even if one or more locations had a level above this conservative 20 million particles per cubic foot of air, the MAC for the Algoma dust, would not necessarily have indicated that the maximum allowaable concentrations, or as you put it, the safe level of exposure had been exceeded?

A No, not unless somebody worked there eight hours a day, day after day; in other words, you have to bring the time factor in, too.

Q Now on the last page of the Exhibit, it's also the last page of the report, there are some recommendations, the first one of which, refers to keeping the local exhaust system maintained in a manner that maximum efficiency is realized.

Were there local exhaust systems, in place, at the Algoma plant taking dust out of the air?

A Oh, yes.

Q What kind of exhaust systems did they have?

A Well, they're called, local exhaust systems, because

you would have a fan which would usually be located on the inside or outside of the wall, or on an outside wall, and a metal duct would be connected to it, and run over to the location that you want dust control on, and then the duct would be attached to a hood, which would direct the air flow in such a manner, that it would draw the dust that was disbursed into the air, into this local exhaust system, and transported to the outside.

Q So it's kind of like a vacuum cleaner, you hook it right up to the equipment?

A Right; as to a vacuum cleaner, it would be called a hose.

Q At Page 3 of the report, the fourth page of the Exhibit, under the heading, Local Exhaust Ventilation Systems, the report states, "Each machine operating on weldrock is equipped with local exhaust ventilation hoods of varying design.".

Based on your inspection of the plant then, each one of these machines had its own exhaust system on it, correct?

A Well, each one of the machines was connected up to duct, metal duct work, to hook to the exhaust system.

Q You might have one system that had duct work going out to various locations?

A Right.

Q All of those drawing the exhaust, the dust, if you will, up through there and out of the atmosphere?

A Right.

Q Back to the last page of the report, and the second recommendation, has to do with the handling of weldrock panels, as well as scrap handling and sweeping.

You say, "Some consideration should be given". . ."to keep dust dispersion at a minimum."

Are these two recommendations intended, in anyway, to suggest the maximum allowable concentration had been exceeded, at any time, to your knowledge?

A No.

They are recommendations that -- to minimize the dust exposure to employees, and they should do some of these dust disbursing activities, such as handling of weldrock and panels, or sweeping in a manner that would minimize the disbursal, because it's difficult to control sweeping operations with a local exhaust system.

Q Is this kind of like a belt and suspenders recommendation?

A Right; we just think they could improve --

improvements you could make, without much to do about it.

Q Now as I understand, the whole purpose of the Industrial Hygiene Unit was to, as you have described it, to work at making the workplace in Wisconsin a safe place, is that correct?

A Yes; to evaluate occupational exposures to various harmful, or potentially harmful air contaminants.

Q Was your ultimate goal to keep workers safe?

A That's it.

Q Did you take your job seriously, Mr. Lea?

A Oh, sure.

Q Did you work hard at it?

A I did.

Q Was the Industrial Hygiene Unit of the State Board of Health, beholding to, or in anyway controlled by industry or manufacturers?

A No.

Q Now based on the actual dust studies that were done at the Algoma plant, that you either directly participated in, or that you reviewed that were done by others in your Industrial Hygiene Unit, did you find any evidence at all that the workers at the Algoma plant were at risk of developing asbestos-related disease?

A No.

MR. RILEY: I have no further questions.

EXAMINATION

BY MR. HARRINGTON:

Q Mr. Lea, as I understand it from your testimony, the Department of Health, Industrial Hygiene Unit at the time you were working in it, and at the time it was under your leadership, defined a NAC for the Algoma plant, is that right?

A For this mixed dust.

Q For the dust in the Algoma plant?

A Right.

Q And you told Algoma management what the safe levels were for that dust in that plant?

A That's correct.

Q Now I also understand from your testimony, that you didn't have, at that time, prior to OSHA coming in, any powers to penalize management for failure to follow these recommendations?

A That's correct.

Q So you were, and your agency, the Department of Health, Industrial Hygiene Division, were dependent upon management's cooperation, in implementing these

safe levels that you had defined for their operation?

A That's correct.

Q And if management, through either inadvertence, or for some other reason, decided not to implement the MAC that you have defined for it, that recommendation that was made by your agency, wasn't much good, was it; it wouldn't do much good if management wouldn't implement it?

A That's correct.

Q Wouldn't do any good if management wouldn't implement?

A That's correct.

Q And to that extent, the safety and health of the employees in the plant at Algoma, was dependent upon management fulfilling its responsibilities, and acting on your recommendations?

MR. GONRING: Well, I object as a leading question.

I think you are asking a lot of leading questions.

I'm not sure this witness is adverse to you.

A The regulatory agency of the State, was the Industrial Commission.

They had a code which contain these; it was a list of these MAC's for various types of air contaminants, also.

Q So you're talking about, on the state level, the Industrial Commission would have also been involved in, in terms of overall responsibility to the employee?

A Right.

Q Along with management?

A Right.

In other words, they have a system of continuous inspection, or of periodic inspection of the industrial plant.

Q The code that you were referring to where the MAC's were published, what was that called in those days, back in the '40s or '50s?

A Oh, just called Maximum Allowable Concentration.

Q Was that published in the Wisconsin Industrial Code?

A Sure.

It would have been called Dust, Fume, Vapors and Gases, was the title of it.

Q And were the numbers in there, the same MAC's that were promulgated by the ACGIH?

A Right.

I think to avoid reprinting the code, if any

changes were made in legislation, just the most recent list was published by the ACGIH, shall be the one in effect, yes.

Q So to your knowledge and recollection, the ACGIH standards, were simply adopted under the code?

A Right.

Q That was a code that regulated the conduct of all of the employers in the State of Wisconsin?

A That's correct.

Q Including the Algoma Company?

A Right.

Q The last dust study that you've been shown today that was done at the Algoma plant, was reflected on Exhibit No. 24, I believe, and that shows a date, at least referred to in your letter on the first page, of June 18, 1956, is that correct?

A That's correct.

Q To your knowledge, after June 18, 1956, do you have any specific recollection of any further dust studies being done at the Algoma facility?

A Not to my knowledge.

Of course, as I say, I kept devoting more and more time to radiation control, up until 1966, so --

Q But to your knowledge, you don't recall any?

A No.

Q Under your leadership, sir, had the management at the Algoma plant, requested continuing dust studies, such as those which we have reviewed today and were conducted in the '40s?

A '50s.

Q '50s; would your Department have complied with the request?

A Oh, certainly.

Q You have no recollection, I take it, of ever denying a request from Algoma management for a dust study at their plant?

A No.

Q You say that the Algoma management called you, or the Department initially, to request that the studies that were done, be done.

This was something that Algoma management initiated, is that correct?

A That's right.

Q And Algoma management, at that time, wanted to know whether the dust in their plant which contained asbestos fibers, were at reasonably safe levels for their employees?

A That's correct.

Q Based upon your dealings with the Algoma management, and the fact that they contacted you, rather than

the other way around, for dust studies, specifically on asbestos fibers, would you consider that Algoma management was knowledgeable, at the time, concerning the potential hazards of asbestos fibers in the air at their plant?

MR. GONRING: I object to the question; lack of foundation.

You can go ahead and answer.

A Would you restate the question again.

MR. HARRINGTON: Why don't you read it back, let me hear it again, too.

(Last question read back by reporter)

MR. GONRING: Same objection.

MR. HARRINGTON: Why don't I rephrase the question, and try to satisfy the objection.

Q What did the fact that Algoma management contacted your agency, specifically for studies relating to asbestos fibers, indicate to you, concerning whether or not Algoma management had some knowledge of potential health hazards about asbestos fibers?

MR. GONRING: Object to the relevancy of that question.

Q You can answer that.

A Well, I would say that they had some concern over

the dust.

Whether they were aware of the various components of that mixed dust, or whether it had potential harmful properties, that I wouldn't know, for sure.

Q So you have no knowledge on that subject?

A No.

Q Sir, do you recall when it was that the first MAC's for asbestos came out from the ACGIH?

A No, I can't remember.

Q Can you put it in the framework of whether it was in the '30s or the '40s?

A No.

Q All right.

Sir, you indicated that while at the Department of Public Health, Industrial Hygiene Division, your duties included review of literature concerning various potentially hazardous substances and studies regarding them?

A That's correct.

Q Do you recall reading literature concerning the disease, asbestosis?

A Yes.

Q Did that occur -- or why don't you tell me when the first time you can recall reading that literature

about asbestosis?

A Would have been late '40s, perhaps.

Q Do you recall a gentleman by the name of Dr. Saler?

A Yes, sure.

Q -- from the Public Health --

A Yes.

Q He is on the federal level?

A Right.

Q And Dr. Dressen; do you recall him?

A Yeah.

Q Do you recall that those gentlemen wrote some papers concerning studies of asbestosis in certain industries?

A No, I can't remember.

Q You don't have any recollection now?

A No.

Q But generally, you do recall reading of asbestosis in the '40s?

A That's correct.

Q And --

A I think there was a Dr. Sanders, in Milwaukee, that probably did most of the lung studies on silicosis or asbestosis, if there were some.

He was a chest specialist.

Q Was he connected with the State, in any way?

A No.

Q Just a private practitioner of medicine?

A Right.

I think he may have done -- in other words, a lot of these exposures were also found by X-ray, and I think that is really why he was concerned.

He would be employed by the management of the plant to read the X-rays of employees that had exposures.

Q His name was what, again?

A Sanders.

Q Returning once again to reading about asbestosis, would your --

MR. HARRINGTON: Strike that.

Q Would the materials that you would have read concerning the disease asbestosis, have been from the publications which you identified earlier in your deposition?

A That's correct.

Q The general Industrial Hygiene trade publications?

A Industrial Hygiene and Toxicology, was the name of the journal.

Q Department of Public Health journals or literature?

A Right.

Q This was generally available in the profession, at

the time?

A Right.

MR. HARRINGTON: Someone else can take over, while I look at my notes.

MR. PARLEE: No questions.

MR. PESSLER: No questions.

MR. GONRING: I've got a couple.

EXAMINATION

BY MR. GONRING:

Q Mr. Lea, I might have missed this, forgive me if I did, but did you actually go to the Algoma plant -- in connection with both of these studies that we saw today, Exhibit 24, the weldrock study and the Kaylo study in 1951?

A What was the first one you mentioned there?

Q The first one is the 1956 study on weldrock dust, which I think is Exhibit 24.

A That one was done by Mr. Otterson and Mr. Poppe. I imagine I'm there, too.

MR. RILEY: Do you want to correct that?

Q Is it your recollection that you did go up there, to the Algoma plant, for the weldrock studies?

A That's correct.

Q And on Exhibit 22, the Kaylo dust survey and dust counts, did you go up to Algoma on that particular project?

(Witness examines document)

A It doesn't appear that I did, because my signature doesn't appear at the end of the report.

Q So that would be a case where you just reviewed what someone else had done, and sent the material on, under your signature, to the company involved?

A That's the one that was done by Walter Poppe and Edward Otterson.

Q So you would review what Mr. Poppe and Mr. Otterson did, review their reports, and send the material under your signature then, to the company?

A Yes, I may have counted some of the dust samples, but --

Q Do you remember doing that in this particular case?

A That's too far back.

Q That's a long time ago.

A Yeah.

Q I think you said that there was one other company in Wisconsin, in which the Unit -- when you were involved with the Unit, studied asbestos, and that was in Two Rivers?

A Right.

Q Do you remember when those studies or study were done?

A I think it would have been in the late '50s.

Q And do you remember in connection with the Two Rivers studies, whether the management of the Two Rivers company asked you to come up there and look at the operation?

A Yeah, except I think the individual management group, would be the Safety Director.

A lot of your industrial plants, then and today, have Safety Directors, which are responsible for health problems, as well as physical safety.

Q It's your recollection that in the Two Rivers plant, the Safety Director asked your Unit to come up there?

A Right.

Q Do you remember yourself going up to the Two Rivers plant?

A Oh, sure.

Q What was the name of that company, by the way?

A Hamilton.

They make chemicals -- a line of chemical laboratory furniture, and I think some of the exhaust hoods for chemistry labs, they would use

sort of transit, or fire-resistant material for the interior of the hood, so they would have fabricating operations in there, such as sawing or drilling.

Q If I can direct your attention again to Exhibit 24; the cover letter for that is October 18, 1956.

Do you have it there?

A Yeah.

Q And Page 3 of that report, the third paragraph, fourth paragraph --

A All right.

Q It's noted in that paragraph, isn't it, that "It should be remembered, however, that this study was made under summer conditions. When natural ventilation is at a minimum, an occasional operation will tend to produce atmospheric dust concentrations which are above the 20 m.p.p.c.f. threshold limit.", correct?

A Yes.

Q Do you remember if your Unit ever went through and did a dust concentration study of weldrock in the wintertime?

A Well, I couldn't say for sure, at this date.

Q Do you feel that would have made a difference in the dust concentration?

A The thing that I'm looking at here, we see, when

natural ventilation is at a minimum.

I think in the summer, it would be maximum.

Q So you say, that in the summertime, the levels would be lower than in the wintertime?

A Right.

You would have some natural ventilation, in addition to the local exhaust ventilation.

Q To move the particles out of the building?

A Right.

Q But you don't recall if you ever went up there in the wintertime, subsequent to this study, to study the dust concentrations?

A No.

This one is October --

Q Let me interrupt you for a second.

Is this sentence then on Page 3, paragraph 4, incorrect; that "When natural ventilation is at a minimum, an occasional operation will produce atmospheric dust concentrations above the threshold limit."?

A Oh, I think I see why that's there.

We're tying that sentence, when natural ventilation is at a minimum, with the previous sentence, and I guess that's what you can't do; just the last sentence there, by itself, and when natural

ventilation is at a minimum, which would be winter, an occasional operation will tend to produce atmospheric dust concentrations which are above 20 m.p.p.c.f.; this is a 1956 date.

Do you see what I mean there?

If you tie the sentence, when natural ventilation is at a minimum, to the previous one, it sounds like you mean, maximum; like you're talking about summer in the previous sentence.

Q And you're saying, that's not the case?

A I think that sentence, all by itself -- we're saying, whatever time the air, natural ventilation is at a minimum, that occasional operation will tend to produce atmospheric concentrations which are above.

Q When would natural ventilation be at a minimum?

A In the winter.

Q Now these maximum allowable concentrations that we've talked about today, did you, yourself, have any part, in your work with ACGIH or in your work for the State of Wisconsin, in setting these standards?

A No, except the annual meeting; in other words, the annual meeting I mentioned before, I think I mentioned before, we had annual meetings, sponsored

by the ACGIH, all the Directors and some of the engineers that -- of various State Industrial Hygiene Units, went to the annual meeting, which was where -- the program was partly seminars and a chance to exchange information with other people, in the same field as you are.

Q Do you recall discussing at these annual meetings, the maximum allowable concentration for asbestos?

A No.

Q Do you remember that ever being discussed at any presentation there?

A No.

Q Do you remember the asbestos mining companies or the companies that manfactured asbestos products, ever appearing at these manual meetings, and discussing maximum allowable concentrations?

A No.

Q Did you, yourself, ever talk to anyone, a representative of an asbestos mining company, or a company that produced asbestos products, about the maximum allowable concentrations?

A No.

Q Did you ever receive any information of any kind, from an asbestos mining company or company that produced asbestos products, about safe levels of

asbestos exposure in the industrial workplace?

MR. HARRINGTON: Object to the form of the question as vague and ambiguous.

MR. RILEY: I'll join in that objection.

Q What is your answer?

A No.

Q This standard that we have discussed, the pure asbestos standard, do you know what I'm referring to, when I'm talking about that?

A Yeah.

Q Was that -- was it written somewhere to tell you to apply that standard when determining the maximum allowable concentration of asbestos in a workplace?

MR. RILEY: I object to the form of the question.

I think that's a little confusing.

Do you understand the question?

A You mean, was it written that you should apply --

Q Let me ask it this way.

How did you know to apply a pure asbestos standard, as opposed, for instance, to a standard that says, if there is asbestos in the product, then the maximum allowable concentration is fine?

A Well, by the nature of the dust, this -- like in this case, you collect what is called gross test dust sample and have it analyzed, otherwise, your operations are such that you know that there's only one type of dust particle being disseminated from the nature of the operation.

Q What was that; was that a guideline written down somewhere, to tell you to do that?

A No.

Q In other words, it was your, and your Unit's interpretation, of the maximum allowable concentration and how to apply it?

A The 5 million particles per cubic foot of air, was applied to dust counts where the only dust particles in this plant are asbestos.

Q And that again, was your interpretation of how that was supposed to be done?

A That's right.

Q Did the ACGIH, in any written material, tell you to apply it that way?

A Well, I think they in effect did, because they told you when not to apply it, when it was a mixture.

Q And they told you that in some publication?

A Well, that would be -- yeah, they print or give you the equation for calculating the MAC for a mixed

dust.

In fact, if you looked at the code that -- the Wisconsin Industrial Commission Code, when they had this dust and gases and vapor codes, that equation was given at the bottom of the table on the MAC's.

Q What was the publication that the ACGIH told you to do that; what was the name of that publication?

A Well, I think it was just called, Maximum Allowable Limits.

Q It was a brochure of some sort, or some guideline of some sort?

A It may have even been in the manual of Industrial Hygiene.

Q And you also said that the Industrial Code, contained that same sort of formula?

A Sure.

Q Would you, as a state employee, ever have interpreted the maximum allowable concentration, in anyway, that was not in the Industrial Code or the ACGIH?

MR. RILEY: I'm going to object to the form, as vague and ambiguous; it's hypothetical, and calls for speculation.

Q Do you understand the question?

A Could you repeat it.

Q Sure, and I'll even change it, to avoid the same objection.

Were you bound by, for instance, the formula in the Industrial Code and the formula that the ACGIH told you to use?

MR. RILEY: I'm going to object to the form of the question.

I think it's vague and ambiguous, particularly to, what you mean by, bound, but in other respects, as well, but that doesn't mean you don't answer over the objection, if you can.

A Nope, we weren't bound to use it.

Q You could have ignored that formula, and used some other kind of formula?

A Yeah.

Q Do you remember ever doing that in any circumstance involving any type of product of any sort in the industrial environment?

MR. RILEY: At this point, I'm going to object --

MR. GONRING: What do you mean, at this point?

You have, for the last three questions.

MR. RILEY: Not the last one.

I'm going to object to the form of the question. I think it's really now, very vague and ambiguous; calls for a lot of speculation, as to what you mean by your terminology.

Moreover, there's no indication here as to whether you're talking about a particular mixed dust, with no percentage of concentration given, the substance; whether you are talking about all of them, or if they all have precisely the same formula.

I don't think it's a fair question.

MR. HARRINGTON: There's no indication he's even talking about dust.

Q Did you understand my question?

Do you even remember it?

A I think I do, and I was going to say, the only time something like that came up, that I can remember of, didn't have to do with dust; that had to do with solvents.

Q But you can't remember a situation where your Unit, in a dust situation, ignored what ACGIH told you to do, or what the Industrial Code told you to do, in figuring out the maximum allowable concentrations?

MR. RILEY: Object to the form of the question.

A No.

As I say, I don't remember anything connected with dust.

All I can remember is, one instance where -- I don't know if this is what you want to get at, but when you're dealing with mixtures, both of these individual components, let's say a mixture of two things, keep it simple, when you have an MAC of -- it's one, and the idea is, that you couldn't have two things present; each has it's own MAC.

Do you see what I mean? In other words, one MAC was a mixture; you could have safe conditions. You couldn't have -- let's say you had 98 percent MAC of one component, and 98 the other, together, you might have -- say you had 1.8 times the MAC for -- allowing for a mixture, which wouldn't be right.

I can remember having to compute one for solvents, vapors, like that.

Q Did the Industrial Code also tell you to use this notion of time weighted average?

A No, because that's sort of implicit in the concept of MAC.

The MAC, you know, is something that a person could be exposed to 8 hours a day, day after day, continuously, without any effect.

Q Is that a definition written down somewhere?

A I don't know, but it certainly is a universal one; it's used that way.

Q By ACGIH?

A Well, not them specifically, but people working in the field of Industrial Hygiene, generally.

Q Is that a directly proportional thing; in other words, if the maximum allowable concentration for an 8 hour day is 40, if someone works one hour, is it 320?

A Well, unless there is some acute effects, with a higher concentration.

You might pick out something like ammonia; now that, in the MAC, might not be irritating enough to be objectionable. If you were exposed to this ammonia in the time intervals that you made today, you might end up with a concentration of ammonia in the air, so strong, that it would be highly irritating, or manifest itself in some respect, that it wouldn't be acceptable.

Q What about asbestos; using my example and applying it to asbestos, is that a valid statement I made.

would it be 320 for one hour, if 40 was the maximum allowable concentration?

A Well, you got the hour in there, but this also involves five days in a week, week after week, so forth, too.

Q Tell me how the days of the week come into this computation?

Let's say you have -- let's say the MAC is 40, for asbestos, in a particular working environment, and let's say that person works in that area one day a week, 8 hours a day.

Is it a proportional calculation, to figure out what his maximum allowable concentration is?

MR. RILEY: Excuse me.

I think the question is maybe a little vague; although, maybe not intentional.

Are you talking about the MAC for asbestos, in the question, or are you talking about mixed dust in your question, because you are talking about 40 being the MAC for asbestos, when he testified, it depends on the proportion of asbestos in the environment.

I'm confused.

MR. GONRING: If it's confusing,

I apologize.

Q Let's say we're talking about, to bring it more into line, let's say we're talking about maximum allowable concentrations for asbestos; let's say 5 is for an 8 hour day, five days a week.

Is it a simple mathematical computation, to figure out what the maximum allowable concentration for a person who works 8 hours a day, one day a week, in that area?

A Well, you have to introduce one more factor.

You have to be working with the same amount of physical exertion; in other words, his air intake is --

Q Let's assume the same amount of physical exertion.

A Well, then you could almost apply it that way.

Q So you would multiply it by five, and say his maximum allowable concentration would be 25, or would it be 20, because he's not working there four days?

A Well, the question -- you have to assume some substance; that would be the procedure you employ, but that question is hard to answer.

Q What about asbestos?

A Well, let's pick -- if you went to silica, for instance, now because, you know, you can -- you're sure of what the effect is, but supposedly this is

cutting and scarring of the deep lung tissue, and that, you know, would be related to how many particles you had in there of free silica.

That kind of a substance, you could do what you're talking about. You could, for a short exposure, you get in so many particles which could do the cutting.

Q Is asbestos that type of substance?

A I don't know; they used to consider asbestos as being somewhat similar in its action to free silica, because when it's diagnosed on X-rays, they would be looking for development of tissue, scar tissue in the lung tissue.

Q When say they used to, are you saying they don't consider it that way, anymore?

A What did I say?

Q You say, they used to consider it like silica.

A Asbestos, I don't know.

I haven't read anything on it, for a long time.

Q Well, based on what you know and from your experience, are you saying that the simple mathematical computation that I referred to, would not work with asbestos?

A If its action was similar to silica, it would.

Q And if it's not, it wouldn't?

A No, because sometimes you might -- let's say there's dust, was some kind of an allergen, where the amount of the allergen in there, probably is not important, as far as the end result, the reaction to it.

A smaller amount might produce the same amount as a larger amount.

It gets complicated, depending on -- depends also on the nature of the air contaminant you're talking about, and its reaction with the body.

Q So that in some instances, to sum all this up, a simple mathematical computation wouldn't work?

A That's right.

Q And that a smaller, or a shorter period of exposure, would not necessarily make the maximum allowable concentration proportionately higher?

MR. RILEY: I'm going to object to the question, at this point, as vague and ambiguous.

There is no reference in there to asbestos.

I think the witness indicated, he can't answer with respect to asbestos and I can't see how it possibly has anything to do with this case.

It is hypothetical, with no link to

anything we can understand, to this case.

Q Do you remember the question, after that soliloquy?

A No.

Q I'll repeat it.

You said that for some substances, a simple mathematical computation wouldn't work, because of the nature of the substance, and my question was, that means that for instance, a shorter period of exposure to a substance, let's say, 8 hours a day, for one day, instead of five days, would not necessarily, proportionately, raise the maximum allowable concentration, depending upon the substance?

MR. RILEY: Same objection.

A I say, the substance has got a lot to do with it.

Q So the answer is, yes?

MR. RILEY: Same objeciton.

MR. HARRINGTON: I'm going to object to that.

I don't think that's what the answer is.

MR. GONRING: Let's over it all, again.

Q You've told me that the substance has a lot to do with the maximum allowable concentration, and whether a simple mathematical computation would work,

as I have laid it out here, correct?

A That's correct.

Q So that in some instances, a person who, depending upon the substance, a person who works one day a week, 8 hours a day, in the same area, as a person who works there 8 hours a day, for five days a week, for the person who works there one day a week, that the maximum allowable concentration is not necessarily going to be four or five times what it is for the person who works there five days a week?

MR. RILEY: Same objection.

MR. HARRINGTON: I'll join in the objection.

A Because some substances, there, could be a different physiological response to an acute concentration, than would be to a more moderate one.

Q So it would not be necessarily four or five times?

MR. RILEY: Same objection.

Q Correct?

MR. HARRINGTON: I'll join in the objection.

A Depending on, as I say, on the substance that we're considering.

Q What type of consulting work have you done, Mr. Lea, since you retired?

To make it easier; you testified that you have consulted for, I think you said Wisconsin companies since you retired, doing what sort of work?

A Tire manufacturer, rubber tires.

Q What was that; what was the nature of your work; what did you do for these people?

A Trying to find out what the causative agent was in their problem.

They were dealing with complex mixtures, you know.

Q When you say a problem, you mean a problem that their workers were having?

A Right.

Q Has any of this consulting work involved asbestos?

A No.

Q You told Mr. Harrington that you had seen some literature about asbestosis.

I'm sorry, I don't have the date. I think you said in the '40s.

Do you remember what that literature said, in terms of, if at all, in terms of the likelihood of asbestosis, in particular, in the work environment?

A No.

I think it was more on the nature of lung tissue changes.

Q It wasn't in terms of exposure to certain substances that would cause one to get asbestosis?

A No.

Q Did you -- do you remember ever reading any literature in which the subject was discussed of exposure to certain substances that would cause one to get asbestosis, or any other asbestos-related disease?

MR. RILEY: By exposure, are you talking about levels of exposure?

MR. GONRING: I'm talking about working around substances.

MR. HARRINGTON: May I hear the question again, please.

(Last question read back by reporter)

MR. HARRINGTON: Let me just lodge an objection, before you answer, as to the question being vague and ambiguous, as to what is meant by literature.

MR. GONRING: The printing on the paper, of any sort.

MR. HARRINGTON: You're including any -- the MAC's published by the AGICH?

THE WITNESS: ACGIH.

MR. HARRINGTON: You are talking

about any piece of paper that he ever looked at?

That's why it's ambiguous.

MR. GONRING: It might have been ambiguous to you. I doubt if it was to him.

Q Did you ever read any articles that dealt with exposure to asbestos substances, and diseases that might be caused by that exposure?

A No.

I think the articles I would have read, related to exposure to asbestos, not some material containing it.

Q But you did read articles concerning exposures to asbestos?

A Yeah.

Q Do you remember what articles you read?

A No, but they would have been, as I say, in the Industrial Hygiene Toxicology Journal; more apt to be just something which asbestos was the only thing involved, such as insulation, using either asbestos fibers or sheet, woolen sheets.

(Short break taken)

CONTINUED EXAMINATION

BY MR. GONRING:

Q Mr. Lea, the fellow that you were talking about,

Dr. Sanders; would that be O. A. Sander?

A That's right.

Q Before this deposition today, did you talk to Mr. Riley, or anybody from his firm?

A Yeah, when he asked about taking this deposition.

Q When was that conversation?

A Oh, maybe about three weeks ago.

Q Is that the first time you had talked to anyone in connection with this case?

Do you understand?

A Oh, yeah; I was reading part of that.

Q Had you ever -- before someone called you to discuss the deposition in this case, having your deposition taken in this case, had you talked about this case, at any point before, with anyone?

A Mr. Riley asked me if I was familiar with this plant, but I told him, that's a long ways back.

Q He asked you that when he talked to you about having your deposition taken?

A Yeah.

Q Had you met with him or anybody else concerning this case, or talked to anyone, over the telephone, concerning this case before that conversation?

A Well, that was what, two weeks before we talked about the taking the deposition.

Q So you had talked to Mr. Riley?
A That would be about six weeks.
Q And was that the first time you had talked to anyone about this case?
A Um-hum.
Q And what did you and Mr. Riley discuss the first time that you talked to him about six weeks ago?
A About this, this report study made on June 18, 1956.
Q Did you meet with him prior to the taking of this deposition, to discuss what questions you would be asked at the deposition?
A No.
Q Was today, when Mr. Riley was asking you questions, the first time you had heard those questions?
A Yeah.
Q Besides the phone, I assume the phone conversation three weeks ago and six weeks ago, had you had any other contact concerning this case before today?
A No.

MR. GONRING: I have nothing further.

MR. RILEY: Anybody else?

MR. HARRINGTON: Just a couple.

EXAMINATION

BY MR. HARRINGTON:

Q Mr. Lea, when you did the dust study at the Algoma plant, were those dust collection systems that you described on the equipment functioning, were they working?

A Oh, sure.

Q Do you have any knowledge -- do you have reason to believe that, for any of the dust studies at that plant, the dust collection systems were not working?

A No.

MR. HARRINGTON: All right; that's all I have.

MR. RILEY: Okay.

I have got just a couple questions, and we're finished.

EXAMINATION

BY MR. RILEY:

Q Mr. Harrington asked you questions about literature and Mr. Gonring did too, about reading literature mentioning asbestosis.

Did anything that you read on that subject, suggest in any way, that the maximum allowable concentration for asbestos was not the safe level of exposure?

A No.

Q Anything in those articles challenge that?

A No.

Q Mr. Gonring asked you about Exhibit 24; that's this 1956 report.

He directed your attention to a sentence about the absence of natural ventilation which might cause, and the words, "occasional operation to produce atmospheric concentration above 20 million particles", and he asked you whether there was any such study, and you don't -- told him you don't -- didn't know whether there was or wasn't.

If there were studies at Algoma, which showed an occasional operation, in the wintertime or otherwise, an occasional operation where the total dust level was in excess of 20 million particles, would that necessarily mean, the maximum allowable concentration had been exceeded?

A No.

Q Is that the time weighted aspect, again?

A Right.

Q And if this occasional instance was a rare one, and the amount of time the worker would be exposed to it, in a day, would be below that, would that suggest the maximum allowable concentration was not exceeded?

A Right.

Q Mr. Gonring asked you questions about whether any manufacturer or miner told you -- gave you any information about asbestos or maximum allowable concentration, and I want to ask you this question.

If you had been told that the Kaylo product that was studied by your Unit at Algoma was the subject of animal experiments, where rats and hamsters and guinea pigs were exposed to massive amounts of, amounts approaching 100 million particles per cubic foot of air, 24 hours a day, for the life time of the animals, and that those animals, when examined, showed evidence of -- some of them showed evidence of fibrosis, similar to asbestosis, if you had been given that information at the time you were doing your work at the Algoma plant, would that have changed, in anyway, the test that you did, or the conclusions that you drew, with respect to the safety of the plant?

A No.

MR. GONRING: Object to the question; hypothetical and calls for a speculative answer.

Q You can answer.

A I said, no.

Q Why not?

MR. GONRING: Object to the question, on the same grounds.

Q Go ahead.

A Well, we're back, sort of, to the previous problem, with high exposure for short durations, being numerically equivalent to low exposure, for a long time.

As I say, sometimes that doesn't work.

Q And in the context of the Kaylo product, if animal experiments involved exposure levels, way above the maximum allowable concentration for the life time of the animals, would that, in any way, change your analysis of the maximum allowable concentration, or the conclusions that you drew about the safety of the Algoma plant?

A No.

MR. GONRING: Same objection.

MR. RILEY: No further questions.

MR. GONRING: One more.

EXAMINATION

BY MR. GONRING:

Q Did you ever go to the Algoma plant to see the Kaylo product, Mr. Lea?

A Well, sure; we saw it when we were there.

Q When you saw it, when you were there, you,

personally?

A Yeah.

Q In 1956, in Exhibit 4, you saw it?

MR. HARRINGTON: That's not Exhibit 4.

Q I'm sorry; Exhibit 24.

(Witness examines document)

Q Is your answer to my last question, yes?

A Yeah.

Q That was when you did the dust study on the weldrock dust concentrations?

A Yes.

MR. RILEY: Well, I have a couple, to follow that up.

EXAMINATION

BY MR. RILEY:

Q I don't know if I understand the last couple of questions, but this says, this meaning Detjen Exhibit 24, refers to weldrock, whereas the prior Exhibit refers to Kaylo.

A Oh.

Q Now do you know whether or not there was a change from Kaylo to weldrock, at some point in time, in the early '50s?

A No.

Q All you know --

A I didn't understand his -- that specifically indicated in his question.

I just thought material fabricating.

Q When you say you believe you saw Kaylo in 1956, are you just referring to material, as opposed to specific brand names?

A Right.

Q So you could you have been examining weldrock, as well as Kaylo?

A Yes.

MR. HARRINGTON: I object to the form of the question.

Q In any event, this refers to a weldrock dust study?

A Right.

Q And does not refer to Kaylo.

You can take a look at that; I don't believe it does.

MR. GONRING: I'll stipulate it doesn't, to speed this along.

MR. HARRINGTON: I just have one more question.

EXAMINATION

BY MR. HARRINGTON:

Q If the exhaust fans at the plant weren't working,

what would you expect would happen to the dust levels; would they go higher or lower?

A Go higher.

Q And that could result in a situation which could exceed the MAC?

MR. GONRING: I object to the form of the question.

Q You can --

MR. RILEY: Wait a minute. That's hypothetical, asking him for speculation.

You're not setting forth sufficient facts for any kind of a clear and understandable answer.

I object to the form of that question; what operation are you talking about; what -- under what circumstances, what duration of time.

That's not fair.

Q If the exhaust systems weren't working to the saws or to the sanders, and dust levels, for any reason, because of maintenance problems or whatever it may be, they were just turned off, could that result in dust levels which could exceed the MAC?

MR. RILEY: Same objection.

That's a different question, and it's wrong and I'm objecting, for a different reason.

I mean, first of all, the man has said -- there's no foundation for it.

He said the exhaust equipment was working, when he did the test. He didn't say he had done any test when the exhaust wasn't working.

You are asking him to speculate about dust; that obviously calls for a speculation.

Q You can answer.

Do you remember the question?

A I think my answer the first time was, the dust concentration would increase particles, for sure.

How big an increase would be --

Q You don't know, because you didn't measure it, correct?

A Right.

Q And that's the same with all of your testimony; you only know what the levels were on the dates that you measured, is that right?

A Right.

MR. HARRINGTON: Thank you.

MR. RILEY: Mr. Lea, you have the right to review this transcript, to make sure this professional court reporter has transcribed, accurately, what you said.

You can also waive the right to review and sign the transcript, if you trust her to accurately write down what you did say, and that's totally up to you.

THE WITNESS: Well, I think she's got it down, right.

MR. RILEY: Signature is waived.

(Proceedings were concluded at 5:10 o'clock p.m.)

STATE OF WISCONSIN)
) ss.
COUNTY OF DANE)

I, KAREN M. IORDACHESCU, Shorthand Reporter and and Notary Public in and for the State of Wisconsin, do hereby certify that the foregoing is a true record of the deposition of WILLIAM L. LEA, who was first duly sworn by me; having been taken on the 16th day of October, 1985, at the home of the witness, 5222 Hammersley Road, Madison, in said County and State, in my presence, and reduced to writing in accordance with my stenographic notes made at said time and place.

I further certify that I am not a relative or employee or attorney or counsel for any of the parties, or a relative or employee of such attorney or counsel, or financially interested in said action.

In witness whereof, I have hereunto set my hand and affixed my seal of office this 18th day of October, 1985.

Registered Professional Reporter
Notary Public, State of Wisconsin